

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

| | | |
|---------------------------------|---|----------------------|
| In the Matter of |) | |
| |) | |
| Media Bureau Public Notice |) | |
| Seeking Comment on Over-the-Air |) | MB Docket No. 04-210 |
| Broadcast Television Viewers |) | |

**COMMENTS OF
LG ELECTRONICS U.S.A., INC.**

LG Electronics U.S.A., Inc. ("LG") hereby submits these comments in response to the Media Bureau's Public Notice released May 27, 2004, seeking comments on options for minimizing disruption and accelerating the transition to digital television ("DTV") for consumers who rely on over-the-air analog television service. LG Electronics U.S.A., Inc. is the North American subsidiary of LG Electronics, Inc., a \$30-billion global leader in consumer electronics, information technology and communications products. A leading supplier of digital HDTV receivers, set-top boxes ("STBs") and displays, LG already is developing its sixth-generation DTV reception circuitry. LG Electronics also is the parent company of Zenith Electronics Corporation, a long-time leader in consumer electronics generally and digital television specifically. Zenith, inventor of the digital modulation technology at the heart of the FCC's DTV Standard, has been a wholly owned LG subsidiary since 1999.

In the Public Notice, among other things, the Commission raises a variety of issues related to possible government subsidies to help consumers purchase converter boxes capable of converting free, over-the-air DTV broadcast signals for viewing on their existing analog TV sets. Two of the Media Bureau's specific questions, related to

minimum technical capabilities of digital-to-analog converters and future costs of these devices, are addressed in these comments.

Based on our digital television experience and expertise in the design and manufacture of DTV set-top boxes, LG estimates that the retail price of a simple digital-to-analog converter box will be under \$100 by late 2005, assuming production volumes in the millions of units. Based on our analysis of the three key factors affecting future STB pricing – the level of technology, unit sales volume and patent licensing fees – we believe that digital-to-analog TV converter prices may be as low as \$50 by 2008, assuming industry-wide demand of tens of millions of units by then.

Level of Technology. The level of technology necessary for a digital-to-analog converter box is much less than what is required for today's more full-featured STBs that output high-definition signals (and retail for \$200 to \$400). The converter boxes contemplated by LG in its cost analysis will receive and demodulate all 18 formats of the ATSC DTV Standard, but will output only low-resolution analog signals via baseband and/or radiofrequency ("RF") jacks.

DVD players provide a useful level-of-technology comparison when projecting future retail pricing for simple digital-to-analog converter boxes. Even today's most affordable DVD players (*e.g.*, \$50-\$70) contain a microprocessor, memory, MPEG decoding as well as the standard power supply, enclosure hardware and remote control. A digital-to-analog converter box will have essentially the same components, plus a low-cost DTV tuner.

Unit Sales Volume. In considering the impact of unit sales volume on the retail pricing of a digital-to-analog converter box, the DVD example is again instructive. Based almost solely on the explosive growth of DVD player sales, consumer prices

plummeted within five years from more than \$500 to less than \$100. The Commission's DTV tuner regulations requiring the phased-in inclusion of DTV tuners in all television receivers 13 inches and larger by 2007 is expected to have a similar effect, exponentially driving down the costs of ATSC chipsets to the point that a digital tuner three years from now should cost about the same as an analog TV circuitry today.

In addition, LG believes that the economies of scale required to ensure that a very low-cost converter box is available can be achieved. Conservative estimates point to 80-million-plus analog television receivers in the United States today that rely upon over-the-air service (*i.e.*, are not connected to a cable or satellite provider). We expect that, while many consumers will replace these analog TVs with new, integrated DTV sets, many others will wish to continue to use their analog sets, thereby providing a viable market for the production of a large volume of low-cost converter boxes.

Licensing Fees. A minor, but still noteworthy, consideration in the overall STB pricing equation relates to licensing fees for patents held by the companies that invested in bringing the technologies to market. As in the above discussion of technology and volume trends, DVD players again provide a useful comparison. Even the lowest-priced, bargain-basement DVD player has royalties in the \$10-\$15 range. This is essentially comparable to the royalty range for any basic digital-to-analog converter box.

CONCLUSION

Based on the factors discussed above and current market trends, LG projects that consumer prices for digital-to-analog converter boxes by 2008-2009 will compare favorably with the prices for DVD players. Of course, by that date, there will be a range of options, including very affordable integrated DTV receivers. Those who want high-definition reception and other features will pay more, just as they do today for

progressive scan DVD players. For consumers who want a very low-cost standard-definition solution, a target retail price of \$50-\$70 should be attainable four years from now, assuming annual sales volume in the tens of millions of units and the estimated licensing fees described above.

Given the tremendous momentum with which the digital transition is moving forward, LG Electronics commends the Commission for having the foresight now to examine the end of the transition to consider a framework for minimizing the potential disruption to consumers when the final switch-over to digital broadcasting occurs. We look forward to continuing to work with the Commission to ensure that all Americans are able to enjoy the benefits of digital television.

Respectfully submitted,

LG ELECTRONICS U.S.A., INC.



Richard M. Lewis
Senior Vice President, Research & Technology
Zenith Electronics Corporation

John I. Taylor
Vice President, Public Affairs
LG Electronics U.S.A., Inc.

LG Electronics U.S.A., Inc.
1000 Sylvan Avenue
Englewood Cliffs, New Jersey 07632

August 11, 2004

cc: John Berresford (FCC/Media Bureau)